355 South Lemon Ave, Suite A
Walnut, CA 91789
(909) 595-5314 Phone
(909) 595-5394 Fax

March 31, 2022
Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Premium Energy Holdings' Application for Preliminary Permit for the Twitchell Pumped Storage Hydro Project, FERC Project No. _____

Dear Secretary Bose:

Pursuant to 18 C.F.R. §§ 4.32 and 4.81 of the Federal Energy Regulatory Commission's ("FERC") regulations, enclosed for filing is Premium Energy Holdings, LLC's ("Premium Energy") Application for Preliminary Permit for the Twitchell Pumped Storage Project.

As detailed in the application, Premium Energy proposes to evaluate the potential development of a pumped storage power plant in the western area of the Sierra Madre mountains in southern California. Premium Energy has a keen interest in harnessing and increasing renewable energy production in California, primarily firming and shaping offshore wind generation, developing long-duration energy storage projects as the Twitchell PSH.

The submittal of this application is for the purpose of securing priority during the licensing process. Feasibility studies will be carried out during the term of this preliminary permit to support the license application.

Premium Energy looks forward to working with the Commission while developing this important new source of clean and sustainable long-duration and large-scale energy storage, geared up to support the development of California's 20 GW of offshore wind generation.

If you have any questions or require additional information regarding this submittal, please contact me at (909) 595-5314 or email me at victor.rojas@pehllc.net.

Sincerely,

Victor M. Rojas

Managing Director at Premium Energy Holdings, LLC

Enclosures

cc:

Document Accession #: 20220331-5527 Filed Date: 03/31/2022

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR PRELIMINARY PERMIT FOR THE TWITCHELL PUMPED STORAGE HYDRO PROJECT

FERC Project No. _____

Prepared by

Premium Energy Holdings, LLC

March 31, 2022

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INITIAL STATEMENT

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Application for Preliminary Permit

for the Twitchell Pumped Storage Project

Premium Energy Holdings, LLC ("Premium Energy" or "PEH"), a California based limited liability corporation, applies to the Federal Energy Regulatory Commission for a preliminary permit for the proposed Twitchell Pumped Storage Hydro project, as described in the attached exhibits. This application is made in order that the applicant may secure and maintain priority of application for a license for the project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.

1. The location of the proposed project is:

State or territory:	California
Counties:	San Luis Obispo, Santa Barbara
Township or nearby town:	Santa Maria
Streams or other body of water:	Huasna, Sisquoc, Cuyama, and Santa Maria River; Alamo Creek

2. The exact name, business address, and telephone number of the applicant are:

Premium Energy Holdings, LLC
355 South Lemon Ave, Suite A
Walnut, CA 91789
Telephone: (909) 595-5314

3. The exact name and business address of each person authorized to act as agent for the applicant in this application are:

Victor M. Rojas
Managing Director at Premium Energy Holdings, LLC
355 South Lemon Ave, Suite A
Walnut, CA 91789
Telephone: (909) 595-5314
Email: victor.rojas@pehllc.net

Maria Flores
Project Manager at Premium Energy Holdings, LLC
355 South Lemon Ave, Suite A
Walnut, CA 91789
Telephone: (909) 595-5314
Email: maria.flores@pehllc.net

4. Preference under Section 7(a) of the Federal Power Act

Premium Energy is a corporation operating in California and is not claiming preference under section 7(a) of the Federal Power Act. Premium Energy's business primarily involves the retrofit and modernization of power plants and pumping plants, transmission planning and design, power system studies, testing and commissioning of power plants and substations.

5. Term of Permit:

The proposed term of the requested permit is forty-eight (48) months.

6. Existing Dams or Other Project Facilities:

The proposed project would make use of the existing Twitchell reservoir and dam for the lower pool. Also, the project proposes the construction of a new upper reservoir with its respective dam.

ADDITIONAL INFORMATION REQUIRED BY 18 C.F.R. § 4.32(a)

1. Identification of persons, associations, domestic corporations, municipalities, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project:

Premium Energy Holdings, LLC
355 South Lemon Ave, Suite A
Walnut, CA 91789
Telephone: (909) 595-5314

2. Identify (names and mailing addresses):

i. Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located.

San Luis Obispo County, County Government Center
1055 Monterey Street
San Luis Obispo, CA 93408
Telephone: (805) 781-5000

Santa Barbara County, Board of Supervisors
105 East Anapamu Street
Santa Barbara 93101
Telephone: (805) 568-2190

ii. Every city, town or similar local political subdivision:

(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located:

City of Santa Maria
110 E. Cook Street
Santa Maria, CA 93454
Telephone (805) 925-0951
City Fax: (805) 349-0657

(B) That has a population of 5,000 or more people and is located within 15 miles of the project dam:

Nipomo Community Services District
Nipomo, CA 93444-0326
Telephone (805) 929-1133

Unincorporated Area of Orcutt
Santa Barbara County Executive Office
E Anapamu St # 200, Santa Barbara, CA 93101
Telephone: (805) 568-3400

Unincorporated community of Huasna
San Luis Obispo County Government Center
1055 Monterey Street, San Luis Obispo, CA 93408
Telephone: (805) 781-5000

iii. Every irrigation district, drainage district, or similar special purpose political subdivision:

(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located:

California Department of Water Resources
1416 9th Street
Sacramento, CA 95814
Telephone: (916) 653-5719

San Luis Obispo County Water Resources Advisory Committee
976 Osos St.
San Luis Obispo, CA 93401
Telephone: (805) 781-5011

Santa Barbara County Flood Control and Water Agency
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101
Telephone: (805) 568-3440

(B) That owns, operates, maintains, or uses any project facilities or any Federal facilities that would be used by the project:

Santa Maria Valley Water Conservation District
PO Box 364, Santa Maria, CA 93458
Telephone: (805) 925-5212

Santa Barbara County Flood Control and Agency
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101
Telephone: (805) 568-344

iv. Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in, or affected by, the application; and interest:

California Department of Water Resources
1416 9th Street
Sacramento, CA 95814
Telephone: (916) 653-5719

California Department of Fish and Game
Inland Deserts Region
3602 Inland Empire Boulevard
Suite C-220
Ontario, CA 91764

California Department of Transportation (Caltrans)
1120 N Street
Sacramento, CA 95814
Telephone: (916) 654-2852

U.S. Forest Service
Inyo National Forest
351 Pacu Lane, Suite 200
Bishop, CA 93514
Telephone: (760) 873-2400

Bureau of Reclamation
California-Great Basin Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898
Telephone: (916)978-5100

Bureau of Land Management
California State Office
2800 Cottage Way Suite W1623
Sacramento, CA 95825
Telephone: (916) 978-4400

California Independent System Operator (CAISO)
P.O. Box 639014
Folsom, CA 95630

California Public Utilities Commission (CPUC)
Commission's Docket Office
505 Van Ness Avenue
San Francisco, CA 94102

v. All Indian tribes that may be affected by the project:

Chairperson
Santa Ynez Band of Chumash Mission Indians of Santa Ynez Reservation, California
PO Box 517
Santa Ynez, CA 93460- 0517
Telephone: (805) 688- 7997

Chairperson
Tule River Indian Tribe of the Tule River Reservation, California
P.O. Box 589
Porterville, CA
Telephone: (559) 781-4271

VERIFICATION STATEMENT

This application for a preliminary permit for the proposed Twitchell Pumped Storage Hydro project is executed in the state of California, county of Los Angeles.

By: Victor M. Rojas
Premium Energy Holdings, LLC
355 South Lemon Ave, Suite A
Walnut, CA 91789

Being duly sworn, deposes, and says that the contents of this application for a preliminary permit are true to the best of his knowledge or belief. The undersigned applicant has signed the application this 31st day of March of 2022.

Victor Rojas
Managing Director at Premium Energy Holdings, LLC

Subscribed and sworn before me, a Notary Public of the State of California, County of Los Angeles, this day of March 31, 2022.

NOTARY PUBLIC

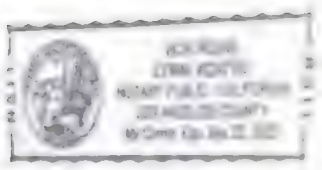


EXHIBIT 1 – DESCRIPTION OF THE PROPOSED PROJECT

1. GENERAL CONFIGURATION.

The proposed Twitchell Pumped Storage Hydro project ("Twitchell PSH" or "Project") would be located 6 miles northeast of Santa Maria, California, in the limits between San Luis Obispo and Santa Barbara County. The project concept envisions the construction of a pumped storage power facility with a minimum capacity of about 600 MW to a maximum of about 1500MW, and a minimum storage duration of 8 hours to a maximum of about 48 hours duration.

The Twitchell PSH would add storage resources to the state's clean energy portfolio and would help in the goal of reducing carbon footprint, improving the grid's reliability and flexibility, and meeting customer's needs.

The Project considers the use of the existing Twitchell reservoir and dam for the lower pool, with an elevation of 592 ft. For the upper reservoir, locations described below and depicted in Exhibit 3, Map 1, are proposed:

Alternative A – Power Canyon Upper Reservoir. A new upper reservoir, referred as Power Canyon Reservoir, located on the western side of the Sierra Madre Mountains, in Santa Barbara County, with an elevation of 1,788 ft. This alternative would require the following construction activities:

- Earthworks and grading to obtain the proposed reservoir floor.
- Construction of the proposed Dam for the upper reservoir.

The upper reservoir for Alternative A would be located within private owned land. The tunnel would go through land owned by different private entities.

Alternative B – Huasna Upper Reservoir. A new upper reservoir, referred as Power Canyon Reservoir, located on the western side of the Sierra Madre Mountains, in Santa Barbara County, with an elevation of 1,296 ft. This alternative would require the following construction activities:

- Earthworks and grading to obtain the proposed reservoir floor.
- Construction of the proposed Dam for the upper reservoir.

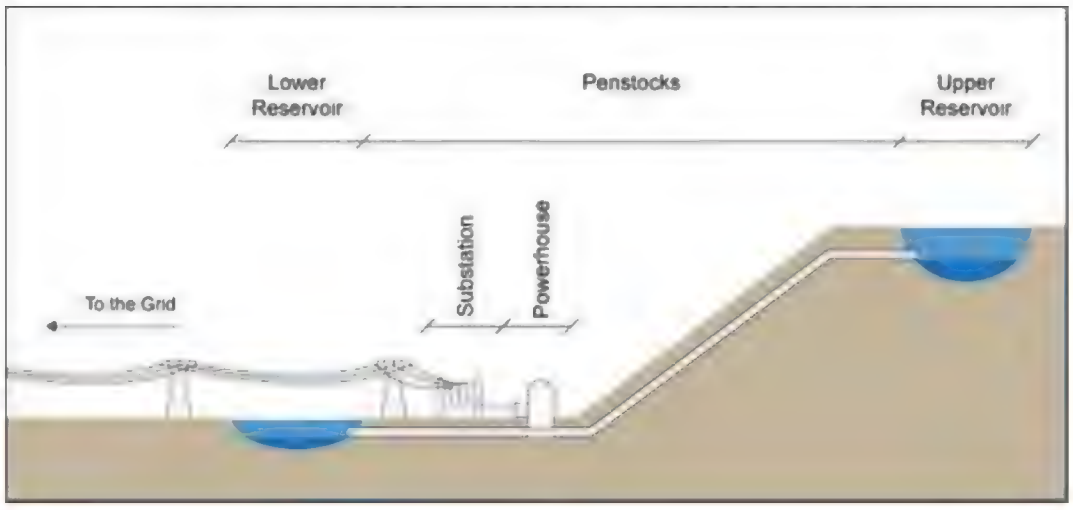
The upper reservoir for Alternative B would be located on land owned by the BUREAU OF LAND MANAGEMENT (BLM). The tunnel would go through land owned by different private entities.

The filling of the reservoirs would be carried out by using water from the existing Twitchell Reservoir. It is expected that surrounding electrical utilities will be interested in the project as a resource for storing renewable energy.

The proposed project would operate as a closed loop hydro-power pumped storage plant (Figure 1), as it would not affect ongoing operations of the Twitchell Reservoir. Once

the proposed upper reservoir is filled with enough stored water for project operation, water will not be taken from the Twitchell Reservoir, except for small amounts to make up for losses due to evaporation. Percolation losses will be controlled using a geomembrane covering the bottom of the upper reservoir.

Figure 1. Typical PSH Configuration (not to scale).



Construction of new embankment would be required for the project's proposed upper reservoir to be filled. The embankment would consist of compacted earth dams. Conceptual dimensions for the project's dams are summarized in Table 1, and tunnels for each alternative are detailed in **Error! Reference source not found.** and Table 3, respectively.

Table 1. New Reservoirs' Embankment Dimensions

Lower Reservoir	Proposed Upper Reservoir	Dam Crest Elev. [ft]	Dam Height [ft]	Dam Length at Crest [ft]
Twitchell Reservoir	Power Canyon Reservoir (Alt. A)	1,804	276	1,415
	Huasna Reservoir (Alt. B)	1,312	472	1,750

Table 2. Hydro Power Penstock Dimensions: Power Canyon – Twitchell Lower.

Power Canyon – Twitchell Lower		
	Diameter (ft)	Length (mi)
Headrace Tunnel	24	0.32
Vertical Shaft	21	0.07
Horizontal Tunnel	21	2.20
Penstocks	14	0.03
Tailrace Tunnel	25	0.46

Table 3. Hydro Power Penstock Dimensions: Huasna – Twitchell Lower.

Huasna – Twitchell Lower		
	Diameter (ft)	Length (mi)
Headrace Tunnel	31	0.16
Vertical Shaft	28	0.04
Horizontal Tunnel	28	1.10
Penstocks	18	0.02
Tailrace Tunnel	33	0.23

Aside from the construction of the new embankments for the new upper reservoir, a hydro power penstock or pressurized tunnel will be required to connect the two reservoirs to the powerhouse. The pumped storage powerhouse, generating/pumping units, electrical switchyard, interconnecting transmission lines, and other appurtenant facilities would complete the project.

For the electrical interconnection, two options are proposed for each lower reservoir alternative.

The first electrical interconnection option is to add a tap to an existing 115 kV Pacific Gas and Electric (PG&E) line, and from that point, upgrade the existing line to 230 kV until reaching the existing Mesa Substation. Thus, a new 230 kV line will connect the Project powerhouse to the proposed tap.

The second option considers the future implementation of the Central California Power Connect (CPPC) Project, a 230 kV loop that connects Midway and Mesa substations. For this option, a new 230 kV line would be installed to reach a future substation part of the CPPC.

In the generating operation mode, the project would deliver 600 MW to the PG&E power grid.

2. RESERVOIRS.

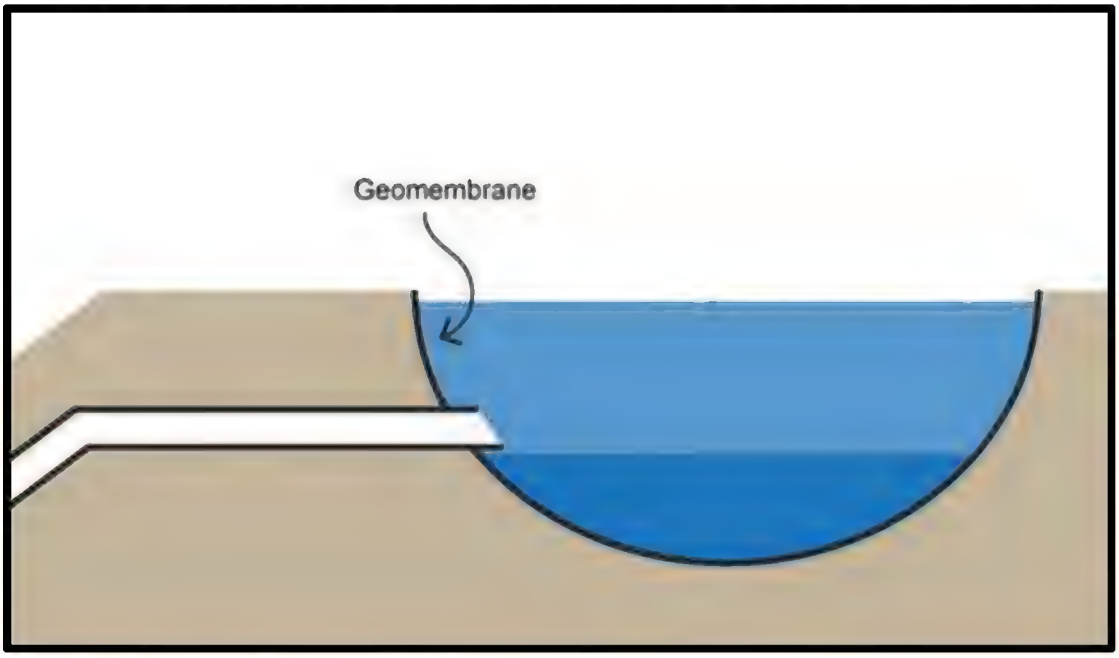
The upper reservoir configuration is best suited to maximize the available hydraulic head, as well as minimize the penstock layout within environmental constraints. The proposed reservoir sites within this application are the result of conceptual engineering completed by Premium Energy and its consultants. During the term of the preliminary permit, Premium Energy will further investigate on the new reservoirs configuration and select the best suited location for energy, economic and environmental considerations.

The project concept includes two upper reservoir alternatives in the western area of the Sierra Madre mountains. A hydraulic head between 704 ft and 1,196 ft, depending on the selected alternative, would exist between the new upper and lower reservoir, which would be exploited for hydro power generation.

Although percolation losses could otherwise represent a major setback on the development of the project, Premium Energy is considering the implementation of a

geomembrane on the base of the upper reservoir to reduce these losses, as seen in Figure 2. Further studies would need to be conducted to determine the permeability of the soil.

Figure 2. Conceptual diagram: Geomembrane implementation (not to scale).



A. Lower Reservoir Configuration

The existing Twitchell Reservoir would be used as lower pool for the PSH. Currently, this Reservoir stores water during big winter storms and releases it allowing to recharge the Santa Maria Groundwater Basin annually.

The project will reuse the water in a cyclic manner and no more significant amount of water will be diverted once the reservoirs filling is completed. The project's proposed reservoirs will provide enough water storage capacity for the minimum capacity of 600 MW continuous output for a minimum of 8 hours.

The project is scalable and depending on the market demands for larger capacity and extended hours storage, could be uprated up to 1500 MW or larger, with storage duration of up to 48 hours to support grid power restoration after a major grid black out.

B. Upper Reservoir Configuration

The project proposes two alternatives as upper reservoir for pumped storage operation. Lower Reservoir Alternative A, Power Canyon Reservoir, would be located three miles northwest of the existing Twitchell Reservoir.

Lower Reservoir Alternative B, referred as Huasna Reservoir, would be located half a mile west of Twitchell Lake.

The two proposed alternatives involve a new upper reservoir created in both federal and private lands. The new upper reservoir alternatives' physical characteristics are detailed in Table 4.

Table 4. Upper Reservoir Alternatives Characteristics

Proposed Upper Reservoir	Surface Area [acre]	Storage Capacity [acre-ft]	Maximum Surface Elevation [ft]
Power Canyon Reservoir (Alt. A)	72	7,150	1,788
Huasna Reservoir (Alt. B)	83	11,400	1,296

Any of the proposed upper reservoir alternatives would have enough storage capacity for 600 MW of power generation for up to 8 hours.

Again, the project is scalable, and the upper reservoir could be enlarged or connected to other upper reservoirs to increase the capacity rating of the PSH to 1500 MW or more, and with storage duration of up to 48 hours.

To enable pumped storage operation, the new reservoir will have intake-outlet structures with a submerged intake elevation at an adequate height. Below this elevation, a permanent reserve of water will remain in the reservoir. From the intake-outlet structures, a hydro power penstock or pressure tunnel will unfold to connect to the proposed Powerhouse and then to the lower reservoir.

Additional tunnels may be constructed depending on the final rating of the project.

In the event water would need to be released from the selected upper reservoir, it would discharge through the spillways. For either of the proposed upper alternatives, Canyon Power or Huasna, runoff water would run through natural creeks. Definitive runoff paths and improvements, if needed, will be developed during the Preliminary Permit's term.

3. TRANSMISSION LINES.

A new substation would be installed on the northern or southern side of the Twitchell Reservoir, depending on the upper reservoir alternatives, close to the powerhouse which could be located above-ground at the ending side of the tunnel. The alternatives to interconnect the Twitchell PSH to the regional electrical utility network are as follows:

1. **Transmission Alternative 1.** Considers the construction of a new 230 kV tie line to interconnect the Project with the existing PG&E's transmission system, in the 115 kV section running from Santa Maria Substation to Mesa Substation, where a tap would be installed, and the line from the proposed tap to the Mesa Substation would be upgraded to 230 kV.
   To this end, around 2.5 miles of SCE's existing right-of-way and a new 9-mile tie line crossing through private lands would be used. The selected Point of Interconnection (POI) for this alternative would be Mesa Substation. (See Exhibit 3, Maps 2 and 3)

2. **Transmission Alternative 2.** Considers the construction of a new 230 kV tie line to interconnect the Project with the future PG&E's 230 kV Central California Power Connect (CCPC) project. The point of interconnection would be the future substation to be constructed as part of the CCPC project. (See Exhibit 3, Maps 4 and 5).

Further studies of the project's transmission path, voltage level, number of circuits, and interconnection alternatives will be carried out during the term of this preliminary permit, to select the best alternative.

4. PROJECT CAPACITY.

The project is proposed to store renewable energy, mainly wind from the upcoming offshore projects in the Morro Bay and Diablo Canyon Call Areas, and facilitate the goal of supplying firm, low-priced, clean power to the grid during extended hours of storage operation (up to 48 hours).

Based on preliminary analysis, the initial planned total installed capacity of the Nacimiento PSH would be 600 MW. Considering the capacity factor, energy availability, roundtrip efficiency, and rated capacity, the estimated annual generation of the Project would be about 1,200 GWh. Although the project rating has been set to 600 MW/8 hours, the project's capacity and storage duration may vary as studies progress. Premium Energy also plans to conduct a system impact study and power market investigations to help further refine the progressive stages of development of suitable energy storage uprating.

The maximum gross head has been estimated between 704 and 1,196 feet depending on the selected upper reservoir alternative. At the present time, the project concept envisions procurement of four new pump-turbine generator-motor sets for the initial 600MW pumped storage powerhouse, with units rated at 150 MW each.

5. FEDERAL LANDS.

The Project considers use of Federal Lands for both reservoir alternatives. However, as the project is developed, this may change.

The interconnection of the project would use existing transmission lines interconnecting the proposed Twitchell PSH's substation to PG&E. Part of the new transmission corridor extends through private lands.

6. ADDITIONAL INFORMATION.

In the development of this application, Premium Energy has acknowledged the following issues pertaining to the project:

Wilderness, Conservation, and Roadless Areas: Premium Energy understands the importance of preserving the Wilderness designated areas under the Wilderness Act of

1964, and has reviewed information from the USDA Forest Service, Bureau of Land Management (BLM), and California Department of Fish and Wildlife (CDFW) to ensure the proposed reservoirs and facilities do not affect any Wilderness, Conservation, and Roadless areas. There are no lands included under the Wilderness Act of 1964 in the proposed project boundary/area.

California Condor: As depicted in Figure 3, the proposed reservoirs are close to the approximate current Condor Range[1]. All proposed alternatives would require further study, to identify (if any) possible impact to the Condor's habitat.

Figure 3. Project's location relative to the Approximate Current Condor Range.

Fire Areas: Premium Energy is aware of the Alamo Fire[2] occurred in 2017 in the Project's area. This will be further considered in the study of the electrical interconnection alternatives, avoiding crossing through the affected area, as much as possible or resourcing to undergrounding of the line as needed.

Fault Zones: Both proposed upper reservoir alternatives are located in the West Huasna fault zone. This information has been obtained from the U.S. Geological Service (USGS).

[1] General information of the California Condor obtained from the U.S. Fish & Wildlife Service (https://www.fws.gov/cno/es/CalCondor/Condor.cfm). GIS data obtained from the CDFW website.
[2] https://hub-calfire-forestry.hub.arcgis.com/maps/california-wildland-fire-perimeters-all/about

Earthquake resistance will be a foremost requirement in the design of the proposed dams in this application. The selected upper reservoir dam will have an appropriate structural and geotechnical design to withstand the corresponding peak ground acceleration of the site during seismic events (50-60% of gravity acceleration). Premium Energy commits to ensuring the proposed dams have a high seismic reliability to ensure safety of the nearby population and infrastructure.

Tribes and Tribal Lands: Premium Energy has identified the Indian tribes that may be affected by the project (see page 5 of this application) and has also used U.S. Census Bureau[3] information to identify Tribal Lands that could be affected by the project. At the moment of filing this application, neither a Tribe, nor Tribal lands, are directly affected by the proposed Twitchell PSH. However, this could change after further investigation during the Preliminary Permit phase.

Some other opportunities have also been identified by Premium Energy during the development of this application, including, but not limited to:

Market Operation: Premium Energy envisions the Project to provide firming and shaping services by pairing with PSH long-hours and large capacity energy storage, keeping the grid stable in the face of potential wind intermittency, smoothing out the over- and under-generation, also integrating ancillary resources and services.

Battery Energy Storage (BESS): Inverter-based energy storage such as li-ion battery systems can complement the proposed pumped storage project. The Twitchell PSH would have the ability to withstand large inrush currents and provide inertia to the grid when a disturbance occurs, or during a grid re-energization, while the BESS could provide fast response required to sudden and rapid variations in the system.

Premium Energy commits to working with all agencies and intervenors to address any project related issues and concerns.

No further definitive information regarding this project is available at the time of filling this application.

[3] https://catalog.data.gov/dataset/tiger-line-shapefile-2017-nation-u-s-current-american-indian-alaska-native-native-hawaiian-area

Form FERC-587
OMB No. 1902-0145
(Expires 10/31/2021)

LAND DESCRIPTION

Public Land States
(Rectangular Survey System Lands)

1. STATE CALIFORNIA 2. FERC PROJECT NO. Not applicable

3. TOWNSHIP 10N RANGE 32W MERIDIAN San Bernardino

4. Check one:

_____License
__X__Preliminary Permit

Check one:

_____Pending
_____Issued

If preliminary permit is issued, give expiration date: Not applicable

5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6 Exhibit 3	**5 Exhibit 3**	**4**	**3**	**2**	**1**
7	**8**	**9**	**10**	**11**	**12**
18	**17**	**16**	**15**	**14**	**13**
19	**20**	**21**	**22**	**23**	**24**
30	**29**	**28**	**27**	**26**	**25**
31	**32**	**33**	**34**	**35**	**36**

6. Contact's name Victor M. Rojas

Telephone no. (909-595-5314)

Date submitted March 31, 2022

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

Form FERC-587
OMB No. 1902-0145
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19	**20**	**21**	**22**	**23**	**24**
30	**29**	**28**	**27**	**26**	**25**
31 **Exhibit 3**	**32** **Exhibit 3**	**33**	**34**	**35**	**36**

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19	**20**	**21**	**22** **Exhibit 3**	**23** **Exhibit 3**	**24** **Exhibit 3**
30	**29**	**28**	**27** **Exhibit 3**	**26** **Exhibit 3**	**25** **Exhibit 3**
31	**32**	**33**	**34** **Exhibit 3**	**35** **Exhibit 3**	**36**

6. Contact's name Victor M. Rojas

Telephone no. (909-595-5314)

Date submitted March 31, 2022

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

EXHIBIT 2 – DESCRIPTION OF THE PROPOSED STUDIES

1. GENERAL REQUIREMENT.

During the 48-month term of this Preliminary Permit, Premium Energy will conduct studies to evaluate the proposed Twitchell PSH. The studies will be conducted both on-office and field research to improve the preliminary plant characteristics as presented in this application, which includes plant capacity, storage duration, maximum ramping during charging and discharging, energy generation, auxiliaries and station service consumption, facilities layouts, environmental and institutional constraints, costs, and schedules.

- **Technical feasibility studies:**
  This proposed study will include a) Project site land investigation, b) Evaluation of proposed upper and lower reservoir alternatives, c) Engineering studies to optimize the project's physical configuration, and d) Determination of size and specifications of the required electromechanical equipment.
- **Geotechnical studies:**
  This proposed study will address a) Geological and seismic conditions, and b) Soil surveys, test pits, bore holes, and topographical surveying.
- **Water and groundwater quality studies:**
  This prosed study will evaluate hydrological conditions in the area (runoff water, rain, evaporation, percolation, and groundwater flow).
- **Water rights study:**
  This study will analyze the project's water supply plan, including legal and water rights matters.
- **Environmental and cultural impact studies:**
  This study will comprise environmental surveys, impact identification, and evaluate mitigation strategies.
- **Energy production and energy needs studies:**
  This proposed study will a) Evaluate the energy market, b) Determine preliminary power sales and supply expectations, c) Evaluate transmission interconnection alternatives, and d) Analyze the electrical system impact.
- **Economic feasibility study:**
  This proposed study will prepare a) Cost Estimates, b) Economic feasibility, and c) Financing options research.

Consultation with appropriate state, federal, and local resource agencies, private and non-governmental organizations will take place. Also, throughout the term of the preliminary permit, Premium Energy will conduct an Open House and multiple outreach meetings with the different stakeholders to address comments, concerns, and inquiries. This would ensure a successful development of the project.

Based on the results and findings of the initial stages of the feasibility study, the applicant will prepare a Notice of Intent and Pre-Application Document as detailed in 18 C.F.R. §§5.5 and 5.6.

Temporary access roads will be required to reach the project's site and perform the required studies. New access roads will be required to reach the proposed reservoirs of Alternatives A and B.

Lastly, as transmission alternatives 1 and 2 consider the use of new right-of-way as well as existing PG&E's transmission corridors, the construction of small sections of access and spur roads would still be required to reach the proposed substation site and related transmission structures.

2. WORK PLAN FOR NEW DAMS CONSTRUCTION.

The new dams' construction will require subsurface investigations in private and public lands. The investigations would be done at the proposed reservoirs site, as depicted in Exhibit 3. Soil and rock borings will be necessary to determine the rock/soil structure and stability for the proposed dams and powerhouse foundations. Soil and rock samples shall be extracted to conduct studies and determine the soil mechanical properties. Therefore, assessing the project site's suitability for construction of the new dams. Furthermore, seismic surveys will also be required.

The schedule of activities will be completed by the applicant during the permit period as shown in the table below:

Table 5. Schedule of Activities

Activity	**Start Month**	**End Month**
Consultation with appropriate state, federal, and local agencies, private and non-governmental organizations	0	42
Technical feasibility studies	0	42
Environmental and cultural impact studies	6	42
Geotechnical studies	12	38
Water and groundwater quality studies	18	38
Water rights study	18	38
Energy production and need studies	38	42
Economic feasibility study	38	42
Organize PAD / NOI	42	48
Submit PAD / NOI application	48	48

The schedule of activities may deviate from its initial formulation. Activities may be adjusted or supplemented depending upon circumstances which may develop as the studies proceed. Remedial actions to the possible disturbance of the proposed studies include the implementation of an erosion and material disposal plan, backfilling of core borings and test pits, and replanting any disturbed vegetation.

3. STATEMENT OF COSTS AND FINANCING.

The total estimated cost of carrying out or preparing the studies, investigations, tests, surveys, maps, plans, or specifications described above are about $5 Million dollars.

The expected sources of financing available to carry out the activities of the described feasibility study are:

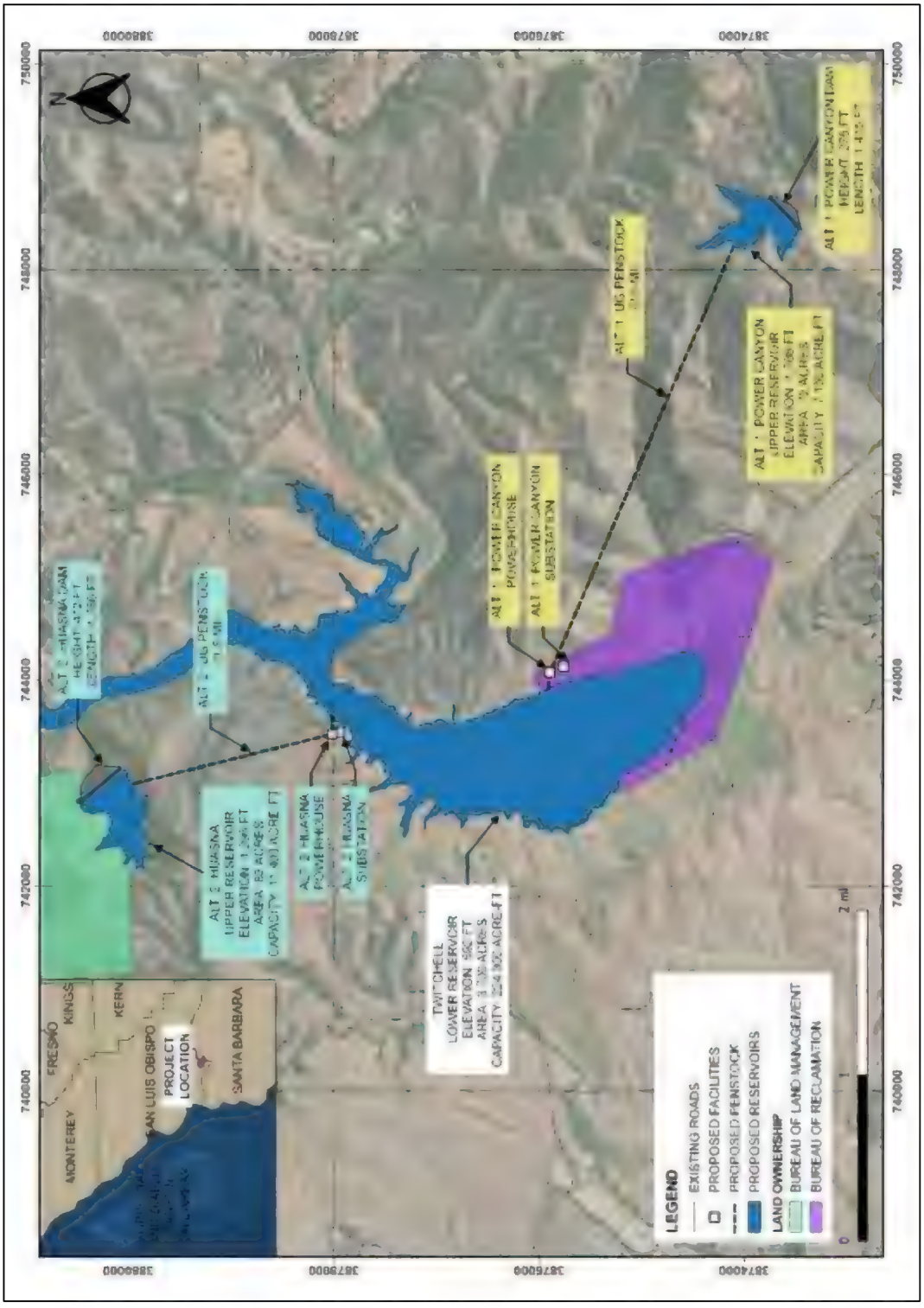
- Premium Energy's available funds
- Equity Investors

The proposed market for the energy storage and production covers the electric markets in California. Power purchasing entities and other potential off takers will be identified in further investigations during the term of the preliminary permit.

EXHIBIT 3 – TWITCHELL PUMPED STORAGE HYDRO PROJECT MAPS

1. PROPOSED PROJECT STUDY AREA BOUNDARY.

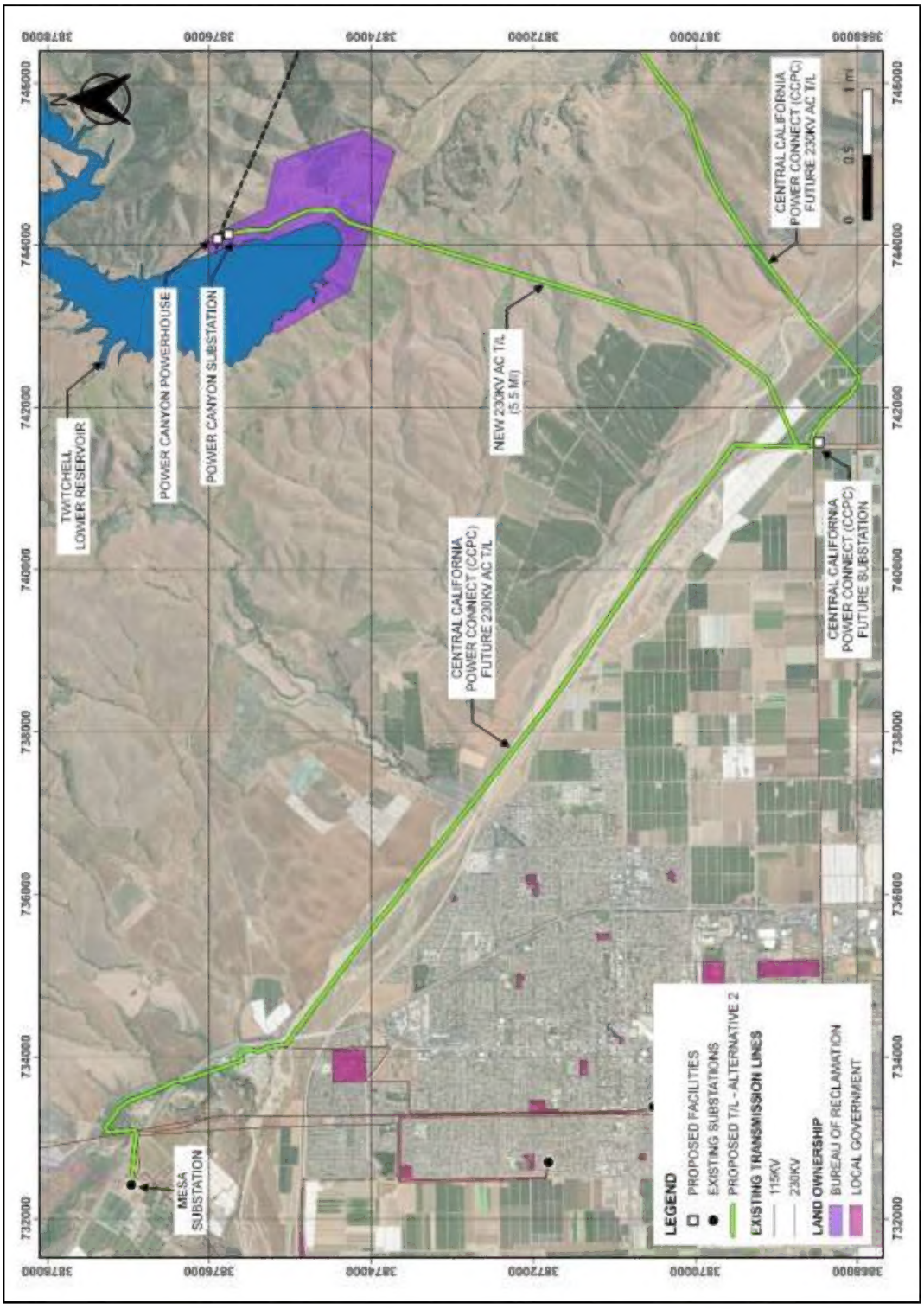
Map 1. Project Layout



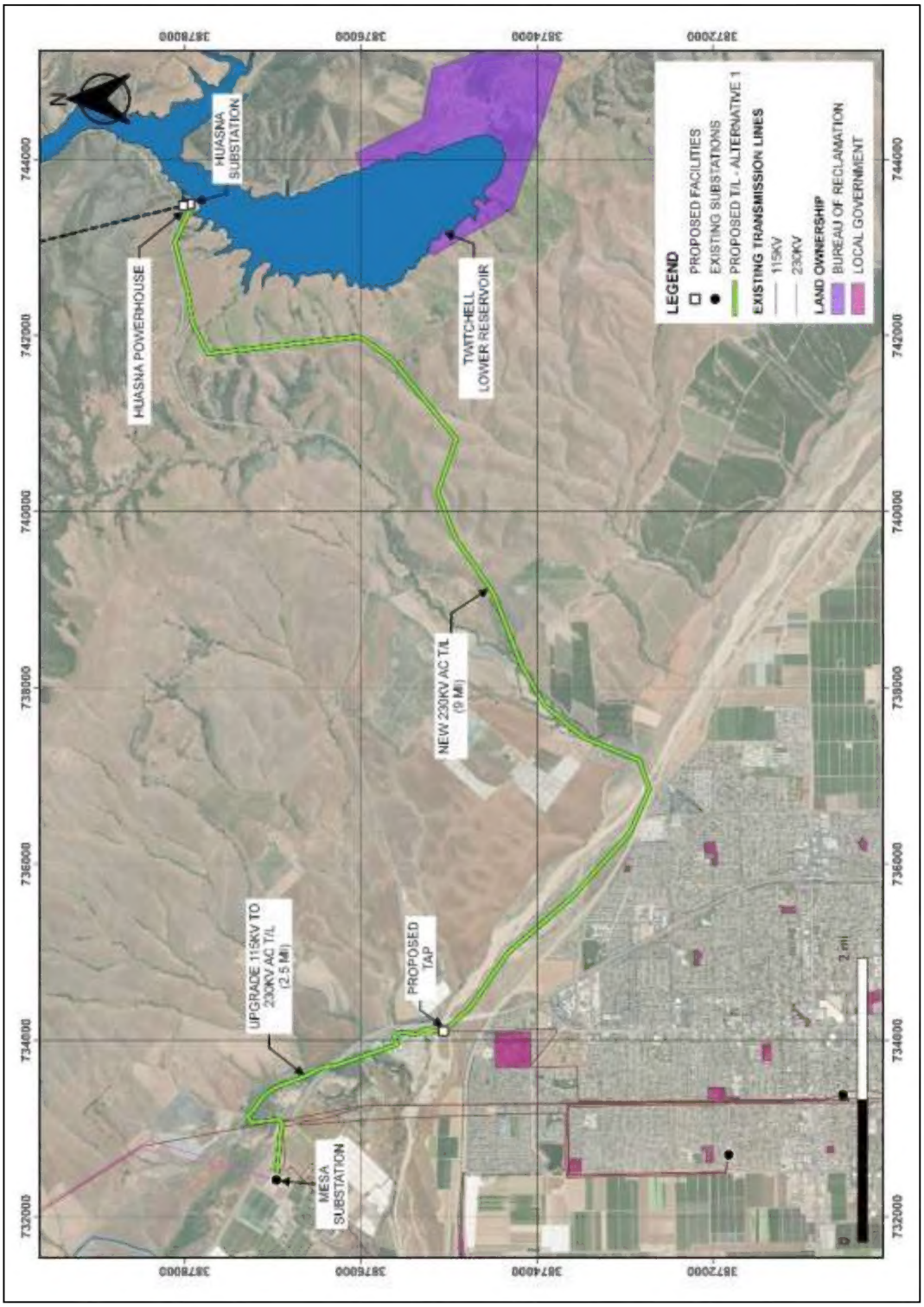
2. PROPOSED ALTERNATIVES FOR ELECTRICAL INTERCONNECTION.

Map 2. Transmission Alternative 1A (PG&E).

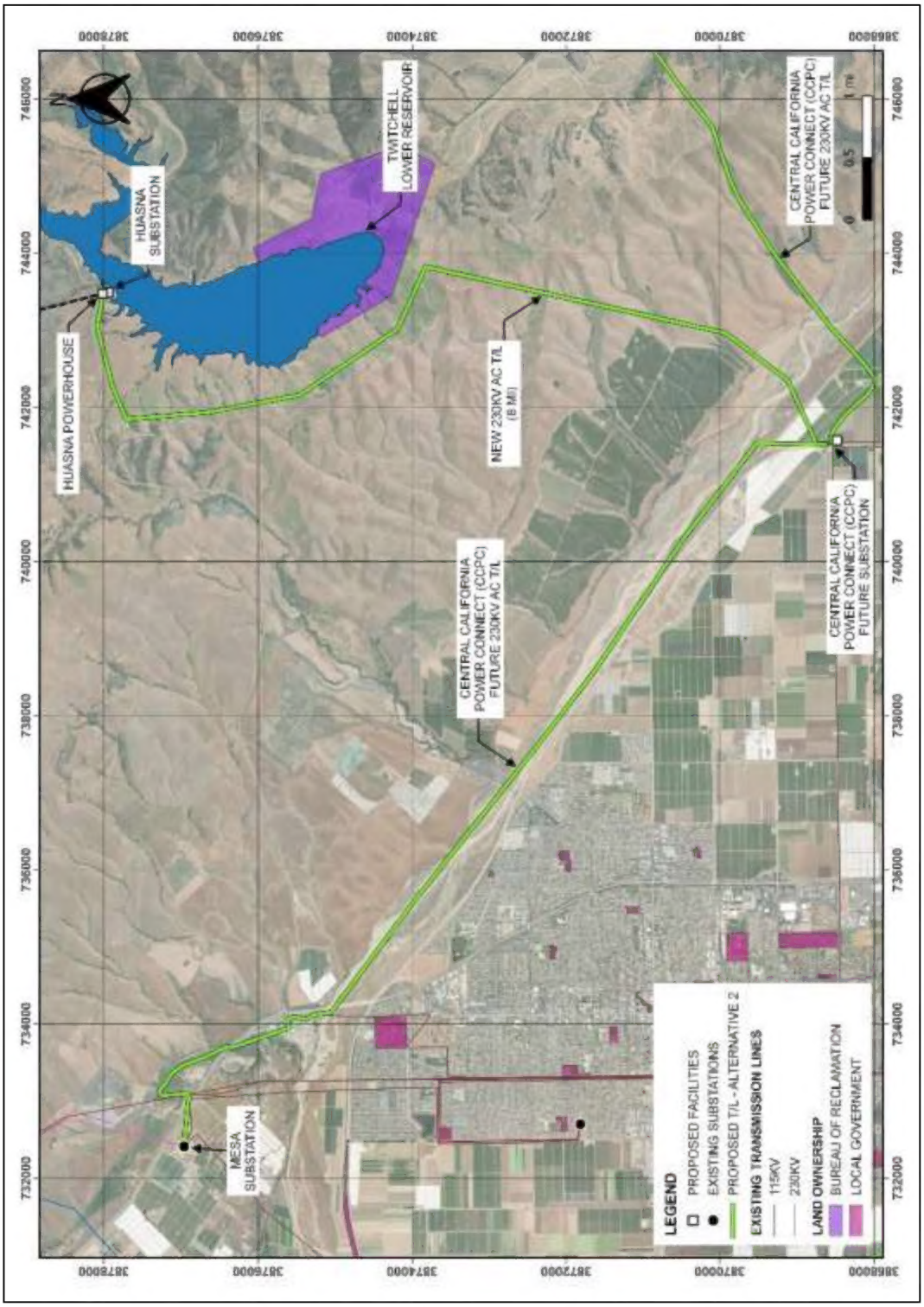
Map 3. Transmission Alternative 1B (PG&E).



Map 4. Transmission Alternative 2A (PG&E).



Map 5. Transmission Alternative 2B (PG&E).



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